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Cu(2) nuclear resonance evidence for a magnetic phase in aged 60-K superconductors RBa2Cu3O6+x (R = Tm, Y)

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Abstract

It is widely believed that the long-range antiferromagnetic order in the RBa2Cu3O6+x compounds (R = Y and rare earths except for Ce, Pr, Tb) is totally suppressed for the oxygen index x ≥ 0.4 (antiferromagnetic insulator-metal transition). We present the results of the copper nuclear quadrupole resonance/NMR studies of aged RBa2Cu3O6+x (R = Tm, Y) samples showing that a magnetic order can still be present at oxygen contents x up to at least 0.7 and at temperatures as high as 77 K.